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GEOLOGY.

Gigantic Fossil Serpent from New Jersey.—Professor Marsh describes in "American Journal of Arts and Sciences," under the name of *Dinophis grandis*, a new and gigantic snake from the Tertiary formation of New Jersey. He says "the earliest remains of Ophidia, both in Europe and this country, have been found in the Eocene, and nearly all the species from strata older than the Post Pliocene appear to be more or less related to the constricting serpents. Remains of this character are not uncommon in European rocks, but in this country two species only, one founded on a single vertebra, have been described hitherto, and both of these were discovered in the Tertiary greensand of New Jersey." The vertebra described "would indicate an animal not less than thirty feet in length; probably a sea-serpent allied to the Boas of the present era."

In closing, the author states that "the occurrence of closely related species of large serpents in the same geological formation in Europe and America, just after the total disappearance in each country of Mosasaurus and its allies, which show such marked ophidian affinities, is a fact of peculiar interest, in view of the not improbable origin of the former type; and the intermediate forms which recent discoveries have led paleontologists, familiar with these groups, to confidently anticipate, will doubtless, at no distant day, reward explorations in the proper geological horizon."

MICROSCOPY.

Microscope Objectives.—A performance of a 4-10 objective made for me by Mr. William Wales, of this city, is of such a superior character that I have no doubt it will be of interest to many of your readers. With direct or central light in contradistinction to oblique, and with the diatom mounted not dry, but in balsam, the *Pleurosigma angulata* is beautifully resolved; the three sets of lines being brought into view with great distinctness, and this with the No. 1 or A eye-piece. Amplification 210 diameters. With no equal power of Powell & Leland's of London, of Hartnack of Paris, of Tolles & Grunow of this country, or of Gundlach of Vienna, various objectives of each and all of which makers I have examined, have either, I myself, or other microscopists of my acquaintance been able to effect this. Another feat which I had recently the honor of exhibiting to several members of the "Bailey Microscopical Club" of this city was a resolution of the podura scale with its light central markings with this same 4-10. The resolution of the striæ on human muscular fibre by a 3-inch objective, also made by Mr. William Wales of this city, again challenges our admiration.—J. J. Higgins, M. D., 23 *Beekman Place, New York.*

[We referred this note to Mr. E. Bicknell, who kindly sends the following reply.—Eds.]

Messrs. Editors of the American Naturalist:—In answer to your question in regard to the above communication, I would say that while fully concurring with Dr. Higgins in his high estimation of Mr. Wales' objectives, I am of the opinion that he (Dr. Higgins) has either made an error in his measurement of amplification (210 diameters with the No. 1 or A eye-piece) or that the 4-10th objective is very much *underrated in magnifying power*. All of Mr. Wales' 4-10th objectives which I have seen have been as near or nearer 1-4ths than 4-10ths in magnifying power; and below I give a table of amplification of such 4-10th objectives as are at hand; also two 1-4ths for comparison:

MAKER.	ANGLE OF AP.	EYE-PIECES.		
		1.	2.	3.
4-10 J. Zentmayer, ...	75°	130	210	400
" Smith and Beck, ...	60°	135	220	415
" R. B. Tolles, ...	135°	125	205	390
" W. Wales, ...	110°	175	300	535
1-4 R. B. Tolles, ...	120°	200	325	615
" Smith and Beck, ...	75°	210	340	650

The measurements were made with a first-class stand and eye-pieces of Zentmayer, the image of a stage micrometer being thrown down by a Spencer's camera lucida, and measured at just ten inches from the eye; cover adjustment for 125th cover glass. It seems to me that there should be some uniform standard adopted by the different makers of objectives, so that the 1-4th of one maker may not be as high as the 1-6th of another maker; or a 4-10th of one be as high as a 1-4th of another; or, still worse, a 3-inch objective of one maker of *precisely the same power* as a 2-inch of another maker, which was just the case with two objectives which I had about one year since. If the objectives did not differ any more than the first three in the above table it would be an improvement. The amplification which Dr. Higgins gives to his 4-10ths is as high as the highest 1-4th in the above table. — EDWIN BICKNELL, *Salem.*

ANTHROPOLOGY.

THE BONE CAVES OF GIBRALTER. — The four Genista Caves, Martin's Cave, St. Michael's Cave and some others, have yielded evidences of early man, in the form of osseous remains, associated with flint knives and flakes, stone axes, polished and chipped; worked bones, serving as skewers, arrowheads, needles and gouges; anklets or armlets of shell, hand-made pottery, querns, rubbing-stones and charcoal. With these were found remains of numerous animals,[*] including *Rhinoceros etruscus*, *Rh. leptorhinus* § (extinct); *Equus*, *Sus priscus* (extinct); *Sus scrofa*, *Cervus ela-*

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[*] Those marked thus §, are abundant; and thus §§, very abundant. A single molar of *Elephas antiquus* was obtained many years since by the late Mr. James Smith, of Jordan Hill, in an old sea-beach (now demolished) at Europa Point, the southern extremity of the rock.